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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,389	07/18/2003	Noriyuki Koike	0171-0994P	2460
2292	7590	03/16/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			WU, IVES J	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,389

Applicant(s)

KOIKE ET AL.

Examiner

Ives Wu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters; prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

(1). Applicant's Remarks filed on January 4, 2006 has been received and acknowledged.

The 112nd paragraph rejections of claims 1 – 4 in the prior Office Action dated October 5, 2005 are withdrawn in response to the applicant's Remarks filed on January 4, 2006.

A new ground of rejections for claims 1 – 4 is introduced in the following paragraphs.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(2). **Claims 1 ~ 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda et al (US006040400A) in view of Maxson et al (US005665794A).

Fukuda et al disclose a addition-curable perfluoro compound-containing composition comprising (A) a linear perfluoro compound containing at least two alkenyl groups per molecule and having a perfluoro cstructure in its backbone chain, (B) a linear perfluoro compound containing one alkeyl group per molecule and having a perfluoro structure in its backbone chain,

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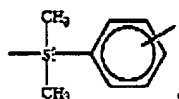
(C) an organosilicone compound containing at least two hydrosilyl groups per molecule, (D) a platinum family metal catalyst.

The component (A) is a base component of the composition, represented by the following general formula (1):

General formula (1):



wherein X is independently $-\text{CH}_2-$, $-\text{CH}_2\text{O}-$, $-\text{CH}_2\text{OCH}_2-$ or $-\text{Y}-\text{NR}^1-\text{CO}-$ wherein Y is $-\text{CH}_2-$ or



and R^1 is a hydrogen atom or an unsubstituted or substituted monovalent hydrocarbon group, preferably an unsubstituted or substituted monovalent hydrocarbon group having 1 to 12 carbon atoms, more preferably 1 to 10 carbon atoms; R_1^1 is a divalent perfluoroalkylene group or a divalent perfluoropolyoxyalkylene group (or divalent perfluoropolyether group); and a is independently 0 or 1. The unsubstituted or substituted monovalent hydrocarbon group of said R^1 includes, for example, an alkyl group, such as a methyl group, an ethyl group, a propyl group and an isopropyl group; a cycloalkenyl group, such as a cyclohexyl group; an alkenyl group, such as a vinyl group and an allyl group; an aryl group, such as a phenyl group and tolyl group; and a group in which at least part of hydrogens bonded to the carbon atoms of said hydrocarbon groups has been substituted with a halogen atom or the like, for example, a fluoroalkyl group, such as a 3,3,3-trifluoropropyl group and a 3,3,4,4,5,5,6,6,6-nonafluorohexyl group. Among them, preferred are a methyl group, a phenyl group and an allyl group.

In the general formula (1), the divalent perfluoroalkylene group represented by R_1^1 includes preferably one represented by the following general formula (1a):



wherein m is an integer of 1 to 10, preferably 2 to 6.

(Col. 2, line 23-63).

Linear perfluoro compounds of component (B):

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Linear perfluoro compounds of component (B)

The perfluoro compound of component (B) used in the composition of the present invention is a linear perfluoro compound containing one alkyl group per molecule and having a perfluoro structure in its backbone chain. The perfluoro compound of component (B) is used as a reactive diluent for the composition. The perfluoro compound of component (B) includes, for example, one represented by the following general formula (2):



wherein X and a are as defined above, and R_f^1 is a monovalent perfluoroalkyl group or a monovalent perfluoropolyether group.

In the general formula (2), the monovalent perfluoroalkyl group represented by R_f^1 includes preferably one represented by the following general formula (2a):



wherein m is an integer of 1 to 20, preferably 2 to 10.

(Col. 4, line 16-38).

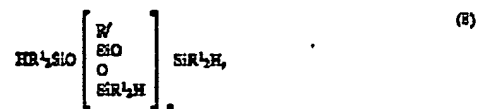
The organosilicon compounds of component (C) used in composition is an organohydrogensiloxane containing at least two hydrosilyl groups (SiH) per molecule and acts as a crosslinking and chain-extending agent for the component (A) (Col. 5, line 28-33).

The platinum family metal catalysts of component (D) is a catalyst for accelerating the addition reaction of the alkenyl groups contained in both components (A) and (B) with hydrosilyl groups contained in the component (C).

As to the component B, an organosilicon compound having the compositional formula (1) in independent claim 1, Fukuda et al **teach** an organosilicon compound containing at least two hydrosilyl groups per molecule (Abstract, line 6-8). Fukuda et al **do not teach** the organosilicon compound as claimed structure.

However, Maxson et al **teach** fluorosilicone composition including alkylhydrogensiloxane and dialkylhydrogen perfluoroalkylethylsiloxane as crosslinker mixture (Abstract, line 5-6). The dialkylhydrogen perfluoroalkylethylsiloxane is described by the formula:

The dialkylhydrogen perfluoroalkylethylsiloxane present in the cross-linker mixture is described by formula



where R^1 and R^2 are as previously described and n=1 to 12. In formula (8) it is preferred that R^1 be methyl and R^2 be 3,3,3-trifluoropropyl. In formula (8) it is preferred that n=1 to 3. More preferred in formula (8) is when n=2 to 3.

(Col. 6, line 10-21).

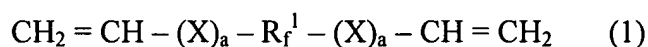
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Further illustrated in Table 2 as component B (Col. 8, line 34-57) where it is equivalent to the formula 1 of instant claim 1 when n of formula 1 sets to 2.

The advantage of using dialkylhydrogen perfluoroalkylethylsiloxane as a crosslinker is to control the cure time and initiation for fluorosilicon composition by its weight ratio (Col. 1, line 6-40, Col. 2, line 26-37).

Therefore, it would have been obvious at time the invention was made to add the crosslinker of dialkylhydrogen perfluoroalkylethylsiloxane taught by Maxson et al in the organosilicon compounds in the composition of Fukuda et al in order to obtain the above-mentioned advantage.

As to the the alkenyl radicals in a concentration of 3×10^{-5} - to 5×10^{-3} mol/g and having a fluorine content of at least 40 wt% in a fluoropolyether compound in **independent claim 1**, in view of the formula 1 and 1a of Fukuda et al (Col. 2, line 25):



Where R_f^1 is represented by the following general formula (1a): $-\text{C}_m\text{F}_{2m}-$, m: 1 to 10. (Col. 2, line 57 – 63).

If m is set to 10, a is set to 1 with $-\text{CH}_2\text{O}-$ the fluorine content is calculated approximately to be $360/(234+360) = 60$ wt%. The alkenyl content is calculated approximately to be $2 \text{ mol}/594\text{g} = 3.4 \times 10^{-3} \text{ mol/g}$.

As to the effect amounts of components B and C being used for component A to cure in **independent claim 1**, in absence of showing criticality of the records, the optimization value of effective amount in a known process renders *prima facie obviousness* within one ordinary skill in the art. *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980).

As to the rubber article in the **dependent claims 2 and 4**, the disclosure of Fukuda et al and Maxson et al meets the requirements of curable fluoropolyether composition in the present claim 1 in terms of the materials used, it is reasonable to presume that the addition curable perfluoro compound composition of prior art references would fulfil the utility as a rubber article in the form of a diaphragm, valve, o-ring, oil seal, gasket, packing, joint or face seal when the compositions of prior art references is in the cured state.

As to the limitation of **dependent claim 3**, because the composition disclosed by prior arts is substantially identical to the curable fluoropolyether composition in the applicant's claim

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1, it will be useful in automobiles, chemical plants, ink jet printers, semiconductor manufacturing lines, aircraft or fuel cells, as well, the intended use must result in a manipulative difference as compared to the prior art. *In re Casey*, 370 F.2d 576, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 312 F.2d 937, 939, 136 USPQ 458, 459 (CCPA 1963).

Response to Arguments

(3). Applicant's arguments, see pages 3 - 5 in applicant's Remarks, filed on January 4, 2006, with respect to the rejection(s) of claim(s) 1 ~ 4 under 112 2nd paragraph have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Fukuda et al (US006040400A) and Maxson et al (US005665794A).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245. The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu
Art Unit: 1713
Date: March 14, 2006



DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700